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The Severn Science Analyzer fo Continuous In-Stack Monitoring of SO3 Gas / Acid Mist

Developed by the CEGB, the continuous SO3 analyzer is backed by over 20 years of field use at utility and industrial installations around the world. The analyzer is produced by Severn Science Instruments (SSI) and is portable, versatile and easy to operate for extended periods with high SO3 monitoring accuracy in the operating range. SO3 / H2SO4 measurement is precise and direct for flue gases from oil, coal, and Orimulsion combustion, chemical and ore reduction processes, environmental surveys and research programs.

The continuous wet chemical principle of the SSI analyzer is sound and well accepted, studied by the EPA and other parties with favorable comparison to traditional "batch" and semi-continuous techniques. The SO3 / H2SO4 in the gas sample is absorbed as sulfate ions (SO4=) in a solution of high grade IPA in water. The capture solution is passed through a reaction bed and a purple colored solution of acid chloranilate ions, directly proportional to the SO3 / H2SO4 concentration, is measured in a continuous flow photometer. Prepared calibration solutions of dilute sulfuric acid are used as standards.

Interference with flue gas constituents and sampling losses, common problems with existing IR, UV and conductivity techniques, are insignificant with the SSI SO3 analyzer. Established quality control procedures including calibrations, temperature control and system checks (gas leak, flow rates, etc.) performed on the SO3 analyzer, as on any dedicated emissions monitor, minimize drift and assure high monitoring accuracy.

Applications for the continuous SO3 analyzer are numerous and likely to expand further as the need to optimize combusiton for changing fuel quality, control corrosion / acidic plume appearance and satisfy regulatory requirements become increasingly important. The SSI SO3 analyzer is an instrument for obtaining both accurate research data on SO3 concentrations in the lab and accurate trending data in field applications concerned with assessment of advanced emissions control systems and improving overall operational efficiency.